

Predictions- True or False

1. Objects of any size exert a gravitational force.
2. The moon is held in orbit by an unbalanced force.
3. If you were able to travel to Jupiter and your mass did not change, your weight would be much greater than on Earth

### **Chapter 1, Section 4: Gravity**

Gravity- the pull of an object from another  
object based on mass and distance (force)

Law of Universal Gravitational Force

- All objects in the universe are attracted to one another.

The amount of attraction depends on Two Factors

1. The mass of an object

The larger the mass, the larger the gravitational force



Example: the Earth has a larger gravitational force than the moon. This is why the moon travels around the Earth.

<http://www.rkm.com.au/ANIMATIONS/animation-moon.html>

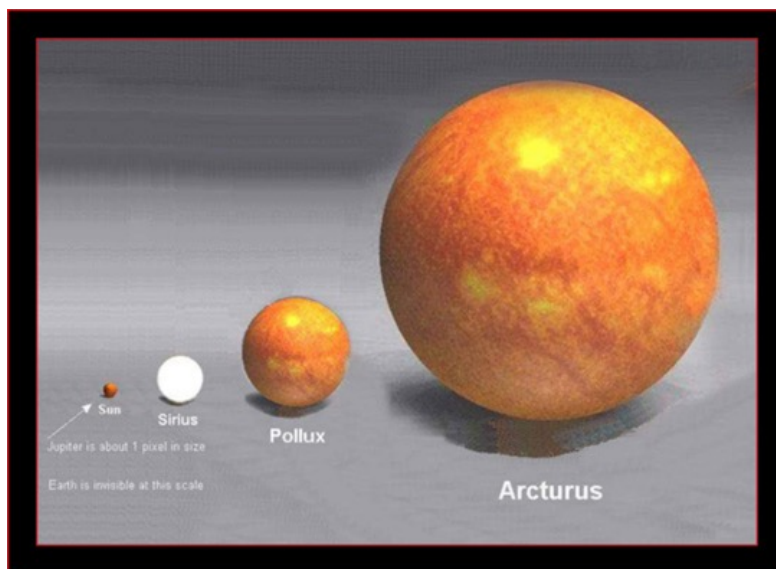
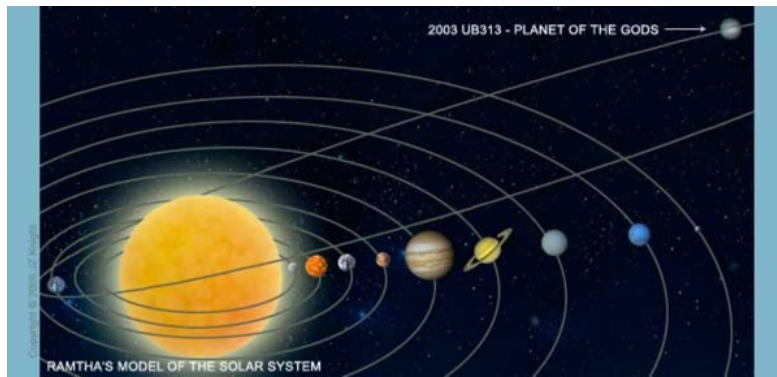
2. The distance of the object

The larger the distance, the less amount of gravitational force



The first balloon is being pulled down by Earth more than the second balloon.

Example: The Sun pulls the eight planets around it because it is the closest star, not because it is the biggest.



## Effects of Lack of Gravity on Astronauts

- Reduced Bone Mass
- Reduced Muscle Mass
- Sleep Patterns Affected
- Reduced Cardiovascular Strength
- Reduced Immune Response